

in the limits of the region. Two terrestrial forms *Patula strigosa* Gould, and *P. alternata* Say, often still retain in the fossil state the red surface markings. Several similar cases other than those here referred to, might also be mentioned, but it is scarcely necessary in the present connection.

In its broadest sense, the term fossil is applicable to all naturally buried organic remains; whether recently entombed, or having been inclosed for countless ages in the earth's strata. In the general process of petrification of organic structures the animal matter is quickly destroyed and only the hard parts escape obliteration. When the proportion of organic to inorganic material is large there is usually a more or less complete effacement of all indications of life; but when the mineral constituents predominate, as in the shells of mollusks, brachiopods, and the tests of echinoderms, etc., these parts are often preserved intact, with simply a loss of animal matter. It frequently happens, however, that the calcareous shell is gradually and completely replaced by some other mineral substance, as iron or silicon, yet preserving perfectly the form and ornamentation. As might be expected under the circumstances the original coloration of fossil shells is very rarely retained; and the few instances noted are therefore of particular interest as revealing certain phases of molluscan life that existed in ages gone by. In the later geological deposits the retainment of some trace of coloration in shells is of course very much more probable than in the earlier rocks.

THE ISAAC LEA CHAPTER OF THE AGASSIZ ASSOCIATION.

BY DR. M. L. LEACH.

Referring to the organization of the American Association of Conchologists, notices of which have appeared in recent numbers of the NAUTILUS, it may not be out of place to mention that a similar society, having the same objects in view, is already in the third year of its existence. The Isaac Lea Chapter of the Agassiz Association, is made up of members widely scattered over the country, to whom the study of conchology is of special interest. There has never been a meeting of the Chapter, but the voting and all society business is done by correspondence. No fee is required for admission, and there are no assessments or dues. The members are

expected to correspond with each other, to exchange specimens, and to help each other in their scientific work. Once a year the members report to the secretary, and the secretary reports to the president of the Association, Prof. H. H. Ballard, Pittsfield, Mass. Prof. Josiah Keep, Mills College, Cal., is president of the Chapter, and Dr. M. L. Leach, Wexford, Mich., is acting secretary.

STRENGTH OF LIMPETS.¹

According to J. Lawrence Hamilton, M. R. C. S., the limpet is probably the strongest of known animals, excepting perhaps the *Venus verrucosa* of the Mediterranean Sea, which pulls 2,071 times its own weight when out of its shell. At Folkestone, Eng., Mr. Lawrence Hamilton found that the common sea shore limpet which weighs about half an ounce when deprived of its shell, required a force exceeding 62 lbs. to remove it from its powerful grip upon the rock, or 1,984 times its own dead weight. The superficial area of the base of the limpet experimented with measured 2.4 sq. inches. Mr. H. doubts whether the limpet's adhesive force has anything to do with the question of atmospheric pressure. A curious illustration of the limpet's strength is given by another naturalist. On a warm dry day in summer, on the Northern Coast of Scotland, a hare approached a limpet and endeavored to moisten its tongue by contact with the watery looking flesh of the latter; instantly, the limpet closed on to a rock pinning the hare fast by the tongue and holding it until the animal was caught by the observer of the occurrence.

COLLECTING CHITONS ON THE PACIFIC COAST.

Excerpts from a Diary.

BY MRS. M. BURTON WILLIAMSON.

Whilst peering under a rocky shelf (at Point Fermin) I saw something that seemed to move when I touched it accidentally with my knife. I pushed my knife under one end of it—the only end visible—

¹ We are indebted to Mr. S. R. Roberts for this interesting note on the adhesive power of the Limpet. It is from the *Illustrated American*.